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Network Working Group
Request for Comments: 876

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Survey of SMTP Implementations

This memo is a survey of implementation status. It does not specify an official protocol, but rather notes the status of impementation of aspects of a protocol. It is expected that the status of the hosts reported on will change. This information must be treated as a snapshot of the state of these implementations.

From May to August 1983, I tested SMTP servers on the Internet to see whether they accepted connections from the Arpanet (a Class A network) and ISI-Net (a Class B network), whether they accepted the user "postmaster" as a mail recipient, and whether a nonexistent user was immediately rejected as a mail recipient.

The hosts from which the tests were conducted were ISI-VAXA on the Arpanet (running 4.1bsd UNIX), and ISI-MOE on ISI-Net (running 4.1a). Internet hosts were tested at various times throughout the last four months. During the survey, I noted anomalies in a few dozen hosts' SMTP servers; examples included a RSET command causing the server to close the connection, a VRFY POSTMASTER evoking a reply containing an illegal mailbox, and some cases of improper reply codes. These bugs were reported and in most cases promptly fixed.

I would class three problems as significant because about 40 hosts exhibit at least one of them:

1) In reply to a RSET and/or a NOOP command, some servers reply "200", which is never a legal reply code, instead of "250". (See sections 4.2 and 4.3 of RFC 821.)

2) If a VRFY command occurs before a MAIL command, some hosts reply "554 Nested MAIL command". The end of section 4.1.1 of RFC 821 states that a VRFY may occur anywhere in the session.

3) If a mail transaction is started, with a sender and receiver specified, and a RSET is issued before the text of the message itself is collected, some servers send a message to the sender about being unable to deliver mail because no message was collected. While RFC 821 doesn't rule this out, it certainly is not consistent with the notion of resetting the transaction.

In the table in the appendix, the names and addresses of the hosts tested were taken from the NIC host table of 17 August 1983. TACs and echo hosts were not included in the survey.

Here are the summarized results of the survey:

483 hosts were tested

283 are claimed by the host table to support SMTP
49 of those 283 (17%) failed to permit a connection to be opened from either ISI-VAXA or ISI-MOE.
51 hosts did not claim to support SMTP, but did allow a connection to be opened from at least one of the two ISI test hosts.

285 hosts were connected to from ISI-VAXA
170 hosts were connected to from ISI-MOE; all 170 were connected to from ISI-VAXA as well.
115 hosts out of the 285 (40%), therefore, could be connected to from ISI-VAXA only.

69 of the 285 connectable hosts (24%) returned a positive reply to the command "VRFY postmaster"

162 hosts out of the 285 connectable hosts (57%) immediately rejected mail addressed to a nonexistent user; that is, they gave an "unknown user" reply to the command "RCPT TO:<jqkxwzvb@host>", where "host" was the foreign host.
115 hosts out of the 285 (40%) gave a positive acknowledgement to a RCPT command with a nonexistent user.
8 hosts (3%) were never up during this part of the test.

121 hosts out of the 162 which immediately reject mail to nonexistent users (75%) accepted mail for the recipient "postmaster". Thus, 42% (121 out of 285) of the connectable hosts do not immediately reject mail for "postmaster".

References:

RFC 821 Postel, J., "Simple Mail Transfer Protocol", RFC 821, Network Information Center, SRI International, Menlo Park, August 1982.

APPENDIX

The hosts in this table are taken from the NIC host table of 17 August 1983, with TACs and echo hosts omitted, and are grouped by network. There are six result entries for each host:

Claim SMTP
- + = the host table lists this host as supporting SMTP;
- - = such support is not listed

Arpanet
- + = a connection could be opened from ISI-VAXA
- - = no such connection could be opened

ISI-Net
- + = a connection could be opened from ISI-MOE
- - = no such connection could be opened

VRFY Post
- + = the command "VRFY postmaster" evoked a positive reply
- - = it did not

RCPT Post
- + = the command "RCPT TO:<postmaster@host>" elicited a positive reply
- - = it did not

Bad jqkx
- + = the command "RCPT TO:<jqkxwzvb@host>" elicited a negative reply (i.e. unknown user)
- - = it received a positive reply (i.e. recipient accepted)

Claim SMTP	Arpa net	ISI- Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
-	-	-	-	-	-	alta-coma	3.1.0.50	
-	-	-	-	-	-	satnet	4.0.0.0	
-	-	-	-	-	-	etam-expak	4.0.0.1	
-	-	-	-	-	-	goonhilly-expak	4.0.0.2	
-	-	-	-	-	-	tanum-expak	4.0.0.3	
-	-	-	-	-	-	satnet-sink	4.0.0.37	
-	-	-	-	-	-	etam-monitor	4.0.0.41	
-	-	-	-	-	-	goonhilly-monitor	4.0.0.42	
-	-	-	-	-	-	tanum-monitor	4.0.0.43	
-	-	-	-	-	-	raisting	4.0.0.72	
-	-	-	-	-	-	raisting-monitor	4.0.0.78	
-	-	-	-	-	-	raisting-expak	4.0.0.79	
-	-	-	-	-	-	fucino	4.0.0.88	
-	-	-	-	-	-	fucino-monitor	4.0.0.94	
-	-	-	-	-	-	fucino-expak	4.0.0.95	
+	+	+	-	+	+	bbncca	8.0.0.2	
+	+	+	-	+	+	bbnccb	8.1.0.2	
+	+	+	-	+	+	bbnccc	8.2.0.2	
+	+	+	-	+	+	bbnccd	8.3.0.2	
+	+	-	-	+	-	bbnccg	8.0.0.3	b
+	+	+	-	+	+	bbnccf	8.0.0.4	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
+	+	+	-	+	+	bbnccp	8.2.0.4	
+	+	+	-	+	+	bbncci	8.3.0.4	
+	+	+	-	+	+	bbnh	8.4.0.4	
+	-	-	-	-	-	bbn-cdnoc	8.0.0.5	
+	+	+	-	+	+	bbn-cd	8.1.0.5	
+	+	+	-	+	+	bbn-admin	8.1.0.6	
+	+	+	-	+	+	bbn-inoc	8.2.0.6	
+	+	+	-	+	+	bbnccw	8.3.0.6	
+	+	+	-	+	+	bbnccs	8.0.0.7	
+	+	+	-	+	+	bbnz	8.1.0.7	
+	+	+	-	+	+	bbnccq	8.2.0.7	
+	+	+	-	+	+	bbnccx	8.0.0.8	
+	+	+	-	+	+	bbnccy	8.2.0.8	
+	+	+	-	+	+	csnet-cic	8.0.0.14	
+	+	+	-	+	+	bbn-noc	8.1.0.14	
+	+	+	-	+	-	ucla-cs	10.0.0.1	
-	-	-	-	-	-	ucla-ccn	10.1.0.1	
+	+	+	-	+	-	ucla-locus	10.2.0.1	
+	+	+	-	+	-	ucla-ats	10.3.0.1	
-	-	-	-	-	-	sri-nsc11	10.0.0.2	
+	+	+	+	+	+	sri-kl	10.1.0.2	
+	+	+	-	+	-	sri-csl	10.2.0.2	
+	+	-	-	+	+	sri-tsc	10.3.0.2	
+	+	+	-	+	-	nosc-cc	10.0.0.3	
-	-	-	-	-	-	logicon	10.2.0.3	
+	+	+	-	+	-	nprdc	10.3.0.3	
+	+	+	+	+	+	utah-cs	10.0.0.4	
+	+	+	-	+	-	utah-20	10.3.0.4	
+	+	+	-	+	-	bbnf	10.0.0.5	
+	+	+	-	+	-	bbng	10.1.0.5	
+	+	+	-	+	-	bbna	10.3.0.5	
+	+	+	+	+	+	mit-multics	10.0.0.6	
+	+	+	-	+	-	mit-dms	10.1.0.6	
-	-	-	-	-	-	mit-ai-reserved	10.2.0.6	
+	+	+	-	+	-	mit-ml	10.3.0.6	
+	+	+	+	+	-	rand-relay	10.1.0.7	
+	+	+	-	+	+	rand-unix	10.3.0.7	
+	+	+	-	+	+	nrl	10.0.0.8	
+	+	+	-	+	-	nrl-aic	10.1.0.8	
+	+	+	-	+	+	nswc-wo	10.2.0.8	
-	-	-	-	-	-	nrl-tops10	10.3.0.8	
-	-	-	-	-	-	nrl-arctan	10.6.0.8	
+	+	+	-	+	-	nrl-css	10.7.0.8	
-	-	-	-	-	-	harv-10	10.0.0.9	
+	+	+	-	+	-	yale	10.2.0.9	
+	+	+	-	+	+	ll	10.0.0.10	
+	+	+	-	+	-	ll-vlsi	10.1.0.10	
+	+	-	-	-	+	ll-xn	10.2.0.10	
+	+	-	-	-	+	ll-en	10.4.0.10	
+	-	-	-	-	-	ll-sst	10.6.0.10	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
+	+	+	-	+	+	su-ai	10.0.0.11	
+	+	+	+	+	+	su-score	10.3.0.11	
+	+	+	-	+	+	compion-vms	10.0.0.12	
+	+	+	+	+	+	gunter-adam	10.1.0.13	
-	+	+	-	+	-	cmu-cs-b	10.0.0.14	
+	+	+	-	+	-	cmu-cs-a	10.1.0.14	
+	+	+	-	+	-	cmu-cs-c	10.3.0.14	
+	+	+	+	+	-	rochester	10.0.0.15	
+	+	+	-	+	+	ames-tss	10.0.0.16	
+	+	+	-	-	+	ames-vmsa	10.2.0.16	
-	+	+	-	-	+	ames-vmsb	10.3.0.16	
+	+	+	-	+	+	mitre	10.0.0.17	
-	+	+	-	-	+	mitre-gateway	10.1.0.17	
-	-	-	-	-	-	mitre-lan	10.4.0.17	
+	+	+	+	+	+	radc-multics	10.0.0.18	
+	+	+	+	+	+	radc-tops20	10.3.0.18	
-	-	-	-	-	-	radc-unix	10.5.0.18	
+	-	-	-	-	-	ge-crd	10.6.0.18	
+	+	+	-	-	+	nbs-vms	10.0.0.19	
+	+	-	-	-	+	nbs-sdc	10.1.0.19	
-	-	-	-	-	-	nbs-unix	10.2.0.19	
-	-	-	-	-	-	nbs-pl	10.3.0.19	
-	-	-	-	-	-	cctc	10.0.0.20	
+	+	+	-	+	+	edn-unix	10.3.0.20	
-	+	+	-	-	+	dca-ems	10.4.0.20	
-	-	-	-	-	-	dcec-psat	10.5.0.20	
-	-	-	-	-	-	dcec-itel	10.6.0.20	
-	-	-	-	-	-	dcec-bridge	10.7.0.20	
+	-	-	-	-	-	lll-tis	10.0.0.21	
+	+	+	-	+	-	lll-mfe	10.1.0.21	
-	-	-	-	-	-	lll-zdivision	10.2.0.21	
-	-	-	-	-	-	isi-speech11	10.0.0.22	
+	+	+	+	+	+	usc-isi	10.1.0.22	
+	+	+	+	+	+	usc-isic	10.2.0.22	
+	+	+	-	+	-	usc-eclb	10.0.0.23	
+	+	+	-	+	-	usc-eclc	10.1.0.23	
+	+	+	-	+	-	usc-ecl	10.3.0.23	
+	+	+	-	+	+	nadc	10.0.0.24	
-	-	-	-	-	-	wharton-10	10.3.0.24	
+	+	+	+	+	+	seismo	10.0.0.25	
+	+	+	+	+	+	usc-isid	10.0.0.27	
-	-	-	-	-	-.	isi-png11	10.1.0.27	
+	+	+	-	+	-.	isi-vaxa	10.2.0.27	
-	-	-	-	-	-	isi-mcon	10.1.21.27	
-	-	-	-	-	-	isi-wbc11	10.1.23.27	
-	-	-	-	-	-	isi-maint11	10.1.25.27	
-	-	-	-	-	-	isi-setting	10.1.89.27	
-	-	-	-	-	-	isi-loretta	10.1.90.27	
-	-	-	-	-	-	isi-pallas-athene	10.1.91.27	
-	-	-	-	-	-	isi-aikane	10.1.97.27	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
-	-	-	-	-	-	isi-czar	10.1.98.27	
-	-	-	-	-	-	isi-mycroftxxx	10.1.99.27	
-	-	-	-	-	-	isi-cmr	10.1.124.27	
-	-	-	-	-	-	isi-ihm	10.1.125.27	
-	+	-	-	-	+	arpa-dms	10.0.0.28	
+	-	-	-	-	-	arpa-png11	10.3.0.28	
+	+	+	-	+	+	brl	10.0.0.29	
+	+	+	-	-	+	apg-1	10.1.0.29	
+	+	-	-	+	-	cca-unix	10.0.0.31	
+	+	+	-	-	+	cca-vms	10.1.0.31	
+	+	+	-	+	-	parc-maxc	10.0.0.32	
+	+	-	-	+	-	kestrel	10.3.0.32	
-	-	-	-	-	-	nps	10.0.0.33	
-	-	-	-	-	-	fnoc-secure	10.3.0.33	
+	+	+	-	-	+	lbl-nmm	10.0.0.34	
+	+	-	+	+	+	lbl-csam	10.1.0.34	
-	-	-	-	-	-	nosc-secure2	10.0.0.35	
+	+	-	-	-	+	nosc-tecr	10.1.0.35	
-	-	-	-	-	-	nosc-secure3	10.3.0.35	
-	-	-	-	-	-	nosc-f4	10.4.0.35	
-	-	-	-	-	-	coins-tas	10.0.0.36	
-	-	-	-	-	-	cincpacflt-wm	10.1.0.36	
+	+	+	-	+	-	purdue	10.0.0.37	
+	-	-	-	-	-	bragg-sta1	10.1.0.38	
-	-	-	-	-	-	bbn-psat-ig	10.2.0.40	
+	+	+	-	+	+	office-1	10.0.0.43	
+	+	+	-	+	+	office-2	10.1.0.43	
+	+	-	-	+	+	office-3	10.2.0.43	
+	+	-	-	+	+	office-7	10.3.0.43	
+	+	+	-	+	-	mit-xx	10.0.0.44	
-	-	-	-	-	-	mit-tstgw	10.2.0.44	
+	+	+	-	+	-	mit-mc	10.3.0.44	
+	+	-	-	+	+	ardc	10.1.0.45	
-	-	-	-	-	-	collins-pr	10.0.0.46	
-	-	-	-	-	-	collins-gw	10.1.0.46	
-	-	-	-	-	-	okc-unix	10.3.0.46	
-	-	-	-	-	-	wpafb	10.0.0.47	
+	-	-	-	-	-	wpafb-afwal	10.1.0.47	
-	-	-	-	-	-	afwl	10.1.0.48	
+	+	+	-	+	-	bbnb	10.0.0.49	
+	+	+	-	+	-	bbnc	10.3.0.49	
+	+	+	-	+	+	bbn-clxx	10.4.0.49	
+	+	+	+	+	+	st-nic	10.0.0.51	
-	-	-	-	-	-	sri-sta6	10.1.1.51	
+	+	-	+	+	+	srijoyce	10.1.4.51	
+	+	-	-	+	+	sri-unix	10.2.0.51	
-	-	-	-	-	-	sri-sta2	10.3.1.51	
-	-	-	-	-	-	sri-prmh	10.3.2.51	
+	+	+	-	+	+	ada-vax	10.0.0.52	
+	+	+	+	+	+	usc-isie	10.1.0.52	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
+	+	+	+	+	+	usc-isif	10.2.0.52	
+	+	+	+	+	+	usc-isib	10.3.0.52	
-	-	-	-	-	-	afsc-ad	10.0.0.53	
-	-	-	-	-	-	afsc-dev	10.2.0.53	
-	-	-	-	-	-	ncsc	10.4.0.53	
-	-	-	-	-	-	martin	10.5.0.53	
+	+	+	+	+	+	cit-20	10.0.0.54	
+	+	+	-	+	-	cit-vax	10.1.0.54	
-	+	-	-	-	+	acc	10.2.0.54	
+	+	+	-	-	+	jpl-vax	10.3.0.54	
+	+	-	-	-	+	anl-mcs	10.1.0.55	a
+	+	+	+	+	+	sumex-aim	10.0.0.56	
+	+	+	-	+	+	su-dsn	10.1.0.56	
+	+	+	-	+	+	aids-unix	10.2.0.56	
-	-	-	-	-	-	tycho	10.0.0.57	
-	-	-	-	-	-	coins-gateway	10.1.0.57	
+	+	+	-	+	-	nyu	10.0.0.58	
+	+	+	-	+	+	bnl	10.1.0.58	
+	+	+	+	+	+	rutgers	10.2.0.58	
+	+	+	+	+	-	ru-green	10.2.1.58	
+	+	+	+	+	-	ru-blue	10.2.2.58	
+	+	+	+	+	+	stl-host1	10.0.0.61	
+	-	-	-	-	-	almsa-1	10.1.0.61	
+	+	-	+	+	+	utexas-11	10.0.0.62	
+	+	+	+	+	+	utexas-20	10.1.0.62	
-	+	-	+	+	+	utexas-780	10.2.0.62	
+	+	-	-	-	+	martin-b	10.1.0.64	
-	-	-	-	-	-	robins-unix	10.3.0.64	
-	-	-	-	-	-	afsc-sd	10.0.0.65	
+	+	+	-	+	-	aerospace	10.2.0.65	
-	-	-	-	-	-	afgl	10.1.0.66	
+	+	+	-	+	-	mitre-bedford	10.3.0.66	
-	+	+	+	+	+	afsc-hq	10.0.0.67	
+	+	+	+	+	+	usgs1-multics	10.0.0.68	
-	-	-	-	-	-	usgs1-amdahl	10.2.0.68	
+	+	+	+	+	+	usgs2-multics	10.0.0.69	
+	+	-	+	+	-	usgs3-multics	10.0.0.70	b
+	-	-	-	-	-	usgs3-vms	10.2.0.70	
-	-	-	-	-	-	bbn-tmp2	10.2.0.71	
+	+	+	-	+	+	bbn-unix	10.1.0.72	
+	+	+	-	+	-	sri-nic	10.0.0.73	
-	-	-	-	-	-	sri-warf	10.1.0.73	
+	+	+	+	+	+	sri-ai	10.2.0.73	
+	+	-	-	-	+	sri-iu	10.3.0.73	
-	+	-	-	-	+	sri-vax	10.3.2.73	
+	-	-	-	-	-	sri-spam-test	10.4.0.73	
+	-	-	-	-	-	simtel20	10.0.0.74	
+	+	+	-	-	+	wsmr70a	10.1.0.74	
+	+	+	-	-	+	wsmr70b	10.3.0.74	
-	+	+	-	-	+	yuma	10.3.0.75	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
+	-	-	-	-	-	obl-em	10.0.0.76	
+	+	+	+	+	+	cisl-service-multics	10.1.0.77	
+	-	-	-	-	-	mit-oz	10.3.0.77	
+	+	+	+	+	+	ucb-arpa	10.0.0.78	
+	+	+	+	+	+	ucb-vax	10.2.0.78	
-	-	-	-	-	-	mcclellan	10.3.0.78	
+	+	+	+	+	+	dec-tops20	10.0.0.79	
+	+	+	+	+	+	dec-marlboro	10.1.0.79	
+	+	+	+	+	+	hi-multics	10.0.0.80	
+	+	+	-	+	+	nems	10.0.0.81	
+	+	+	-	+	+	nalcon	10.1.0.81	
+	+	+	-	+	+	nsrdcoa	10.3.0.81	
+	+	+	-	+	+	bbncct	10.0.0.82	
+	+	+	+	+	+	bbn-vax	10.1.0.82	
+	+	+	-	+	+	ddn1	10.3.0.82	
-	-	-	-	-	-	bbn-rsm	10.4.0.82	
+	+	+	-	+	+	bbn-noc2	10.6.0.82	
-	-	-	-	-	-	test-mailbr	10.7.0.82	
-	+	+	-	+	+	minet-lon	10.0.0.83	
-	+	+	-	+	-	minet-noc	10.1.0.83	b
+	+	-	-	+	-	tac-news	10.2.0.83	b
-	-	-	-	-	-	test-bridge	10.3.0.83	
-	-	-	-	-	-	nswc-dl	10.0.0.84	
-	+	-	-	+	-	nswc-g	10.1.0.84	
+	+	-	-	-	+	nwc-387a	10.0.0.85	
+	+	+	-	+	+	nwc-387b	10.3.0.85	
+	+	+	-	+	+	stt-noc	10.0.0.86	
+	+	+	+	+	+	sandia	10.0.0.87	
+	+	+	+	+	+	nlm-mcs	10.0.0.88	
+	+	+	+	+	+	columbia-20	10.0.0.89	
+	+	+	-	+	-	lanl	10.0.0.90	
+	+	+	+	+	+	washington	10.0.0.91	
+	+	+	-	+	-	uw-vlsi	10.3.0.91	
-	-	-	-	-	-	nusc-npt	10.2.0.92	
-	+	-	-	-	+	nusc	10.3.0.92	
+	+	-	-	+	+	office-8	10.0.0.93	
+	+	+	-	+	+	office-10	10.1.0.93	
+	+	+	-	+	+	office-15	10.2.0.93	
+	+	+	-	+	-	uwisc	10.1.0.94	
-	-	-	-	-	-	s1-gateway	10.0.0.95	
+	+	+	-	-	+	s1-a	10.1.0.95	
+	-	-	-	-	-	s1-b	10.2.0.95	
+	+	+	-	+	-	s1-c	10.3.0.95	
+	+	+	+	+	-	udel-relay	10.0.0.96	
-	-	-	-	-	-	udel-tcp	10.1.0.96	
+	+	-	-	+	+	udel-ee	10.2.0.96	
+	+	-	+	+	+	cornell	10.3.0.96	
+	+	+	-	-	+	paxrv-nes	10.2.0.97	
-	-	-	-	-	-	uwisc-x25	10.3.0.99	
+	-	-	-	-	-	purdue-tn	14.0.0.1	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
+	-	-	-	-	-	uwisc-tn	14.0.0.2	
+	-	-	-	-	-	udel-tn	14.0.0.3	
-	-	-	-	-	-	ucl-vtest	14.0.0.4	
-	-	-	-	-	-	uk-satnet	14.0.0.6	
-	-	-	-	-	-	wisc-ibm	14.0.0.7	
+	-	-	-	-	-	rand-tn	14.0.0.8	
-	-	-	-	-	-	mit-br-ethernet	18.2.0.7	
-	-	-	-	-	-	mit-tiu	18.2.0.15	
-	-	-	-	-	-	mit-alto-509	18.2.0.18	
-	-	-	-	-	-	mit-alto-510	18.2.0.20	
-	-	-	-	-	-	mit-alto-524	18.2.0.32	
-	-	-	-	-	-	mit-alto-214b	18.2.0.56	
-	-	-	-	-	-	mit-alto-511	18.2.0.72	
-	-	-	-	-	-	mit-muriel	18.2.0.80	
-	-	-	-	-	-	mit-alto-508	18.2.0.96	
-	-	-	-	-	-	mit-alto-503	18.2.0.100	
-	-	-	-	-	-	mit-spooler	18.2.0.128	
-	-	-	-	-	-	mit-np-alto	18.2.0.129	
-	-	-	-	-	-	mit-alto-502	18.2.0.130	
-	-	-	-	-	-	mit-alto-828	18.2.0.134	
-	-	-	-	-	-	mit-alto-520	18.2.0.170	
-	-	-	-	-	-	mit-gw-lcs	18.8.0.4	
-	-	-	-	-	-	mit-bridge	18.8.0.5	
-	-	-	-	-	-	mit-rts	18.8.0.9	
-	-	-	-	-	-	mit-rts40	18.8.0.10	
-	-	-	-	-	-	mit-vax	18.8.0.16	
-	-	-	-	-	-	mit-xx-11	18.8.0.32	
+	+	+	-	+	-	mit-csr	18.10.0.8	
-	-	-	-	-	-	mit-rts40-v2	18.10.0.10	
-	+	+	-	+	-	mit-ajax	18.10.0.64	
-	+	+	-	+	-	mit-borax	18.10.0.65	
-	+	+	-	+	-	mit-comet	18.10.0.66	
-	-	-	-	-	-	mit-dutch	18.10.0.67	
-	+	+	-	+	-	mit-mrclean	18.10.0.68	
-	+	+	-	+	-	mit-bold	18.10.0.69	
-	+	+	-	+	-	mit-fab	18.10.0.70	
-	+	+	-	+	-	mit-prj	18.10.0.71	
-	+	+	-	+	-	mit-duz	18.10.0.72	
-	+	+	-	+	-	mit-dash	18.10.0.73	
-	+	+	-	+	-	mit-tide	18.10.0.74	
-	+	-	-	+	-	mit-fla	18.10.0.75	
+	+	+	-	+	-	mit-cls	18.10.0.76	
-	+	+	-	+	-	mit-grape-nehi	18.10.0.77	
-	+	+	-	+	-	mit-heineken	18.10.0.78	
-	+	+	-	+	-	mit-oa	18.10.0.79	
-	-	-	-	-	-	mit-macewan	18.10.0.80	
-	-	-	-	-	-	mit-kirin	18.10.0.81	
-	+	+	-	+	-	mit-molson	18.10.0.82	
-	+	+	-	+	-	mit-milo	18.10.0.86	
-	+	+	+	+	+	mit-opus	18.10.0.87	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
-	+	+	-	+	-	mit-rinso	18.10.0.88	
-	-	-	-	-	-	rsre	25.8.0.0	
+	+	+	-	+	-	su-shasta	36.40.0.192	
+	+	+	+	+	+	su-hnv	36.40.0.193	
+	+	+	+	+	+	su-navajo	36.40.0.203	
+	+	+	+	+	+	su-whitney	36.40.0.204	
+	+	+	-	+	+	su-glacier	36.40.0.205	
+	+	-	-	-	+	su-star	36.40.0.207	
+	+	+	+	+	-	su-carmel	36.40.0.212	
+	+	+	+	+	+	su-sierra	36.40.0.213	
+	-	-	-	-	-	su-ardvax	36.45.0.85	
+	-	-	-	-	-	su-safe	36.45.0.86	
+	+	-	-	+	+	sri-tsca	39.128.3.59	
-	-	-	-	-	-	sri-rolm	45.0.32.4	
-	+	-	+	+	+	ucbarpa	46.0.0.4	
-	+	-	+	+	+	ucbcad	46.0.0.5	
-	+	-	+	-	+	ucbernie	46.0.0.6	
-	+	-	+	+	+	ucbmonet	46.0.0.7	
-	+	-	+	-	+	ucbesvax	46.0.0.9	
+	+	-	+	+	+	ucbvax	46.0.0.10	
-	+	-	+	+	+	ucbkim	46.0.0.11	
-	+	-	+	+	+	ucbcalder	46.0.0.12	
-	+	-	+	-	+	ucbdali	46.0.0.13	
-	+	-	+	-	+	ucbmatisse	46.0.0.14	
-	+	-	+	-	+	ucbmedea	46.0.0.15	
-	+	-	+	+	+	ucbingres	46.0.0.19	
+	+	-	+	+	+	sac-vax	47.0.32.3	
+	+	-	-	+	-	ndre1	48.3.1.41	
-	+	-	+	-	+	nta-vax	50.0.0.8	
+	+	-	-	+	-	cmu-cs-ius	128.2.254.128	
+	+	-	-	+	-	cmu-cs-vlsi	128.2.254.129	
-	-	-	-	-	-	cmu-cs-ps1	128.2.254.130	
+	+	-	-	+	-	cmu-cs-zog	128.2.254.131	
+	+	-	-	+	-	cmu-cs-g	128.2.254.132	
+	+	-	-	+	-	cmu-cs-cad	128.2.254.133	
+	-	-	-	-	-	cmu-cs-k	128.2.254.136	
+	+	-	-	+	-	cmu-ri-fas	128.2.254.138	
+	+	-	-	+	-	cmu-cs-spice	128.2.254.139	
+	+	-	-	+	-	cmu-cs-gandalf	128.2.254.140	
+	-	-	-	-	-	cmu-ri-leg	128.2.254.141	
+	+	-	-	+	-	cmu-ri-isl1	128.2.254.143	
-	-	-	-	-	-	cmu-cs-j	128.2.254.144	
+	+	-	-	+	-	cmu-cs-speech	128.2.254.145	
-	-	-	-	-	-	cmu-cs-ps2	128.2.254.146	
+	+	-	-	+	-	cmu-cs-unh	128.2.254.150	
+	+	-	-	+	-	cmu-ri-arm	128.2.254.151	
+	+	-	-	+	-	cmu-ri-isl2	128.2.254.152	
+	+	-	-	+	-	cmu-cs-cfs	128.2.254.153	
+	+	-	-	+	-	cmu-cs-jk	128.2.254.154	
+	+	-	-	+	-	cmu-cs-pt	128.2.254.155	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
+	+	-	-	+	-	cmu-cs-h	128.2.254.156	
+	+	-	-	+	-	cmu-ri-rover	128.2.254.157	
+	+	-	-	+	-	dcn1	128.4.0.1	
+	-	-	-	-	-	dcn2	128.4.0.2	
+	+	-	-	+	-	dcn3	128.4.0.3	
+	-	-	-	-	-	dcn4	128.4.0.4	
+	+	-	-	+	-	dcn5	128.4.0.5	
+	+	-	-	+	-	dcn6	128.4.0.6	
+	+	-	-	+	-	dcn7	128.4.0.7	
+	+	-	-	+	-	dcn8	128.4.0.8	b
+	-	-	-	-	-	dcn9	128.4.0.9	
+	+	-	-	+	-	ford1	128.5.0.1	
+	+	-	-	+	-	ford2	128.5.0.2	
+	+	-	-	+	-	ford3	128.5.0.3	
+	+	-	-	+	-	ford4	128.5.0.4	
+	+	-	-	+	-	ford-lab	128.5.0.8	
+	-	-	-	-	-	ford-vax	128.5.0.9	
+	-	-	-	-	-	ford-res	128.5.0.10	
+	+	-	-	+	-	ford-ecc	128.5.0.11	
+	+	-	-	+	-	ford-srl	128.5.0.12	
+	+	-	-	+	-	ford-ers	128.5.0.13	
+	+	-	-	+	-	ford-eed	128.5.0.14	b
+	+	-	-	+	-	ford-foe	128.5.0.15	b
+	+	-	-	-	+	ford-wdl1	128.5.32.1	
+	-	-	-	-	-	ford-wdl2	128.5.32.2	
+	+	-	-	+	-	ford-wdl3	128.5.32.3	
+	-	-	-	-	-	ford-wdl4	128.5.32.4	
+	+	-	-	-	+	ford-wdl5	128.5.32.5	
-	+	-	-	-	+	ford-wdl6	128.5.32.6	
+	-	-	-	-	-	dfvlr1	128.7.0.1	
+	-	-	-	-	-	dfvlr2	128.7.0.2	
+	-	-	-	-	-	dfvlr3	128.7.0.3	
+	-	-	-	-	-	dfvlr7	128.7.0.7	
+	+	-	-	+	-	umd1	128.8.0.1	
+	+	-	-	+	-	umd2	128.8.0.2	
+	+	-	-	+	-	umd3	128.8.0.3	
+	+	-	-	+	-	cvl	128.8.0.4	
+	+	-	-	+	-	umd5	128.8.0.5	
+	-	-	-	-	-	umd6	128.8.0.6	
+	-	-	-	-	-	umd7	128.8.0.7	
+	+	-	-	+	-	umd-csd	128.8.0.8	
+	-	-	-	-	-	umd9	128.8.0.9	
+	-	-	-	-	-	umda	128.8.0.10	
+	-	-	-	-	-	umdb	128.8.0.11	
+	-	-	-	-	-	umdc	128.8.0.12	
+	-	-	-	-	-	umdd	128.8.0.13	
+	-	-	-	-	-	umde	128.8.0.14	
+	-	-	-	-	-	umdf	128.8.0.15	
-	-	-	-	-	-	isi-accutest	128.9.0.24	
-	-	-	-	-	-	isi-elvira	128.9.0.41	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
-	-	-	-	-	-	isi-hobgoblin	128.9.0.42	
-	-	-	-	-	-	isi-moe	128.9.0.43	
-	-	-	-	-	-	isi-troll	128.9.0.44	
-	-	-	-	-	-	isi-curly	128.9.0.45	
-	-	-	-	-	-	isi-shemp	128.9.0.46	
-	-	-	-	-	-	isi-zombie	128.9.0.47	
-	-	-	-	-	-	isi-xorn	128.9.0.48	
-	+	-	-	-	+	isi-vlsia	128.9.0.49	
-	+	+	-	-	+	isi-vlsib	128.9.0.50	
-	-	-	-	-	-	isi-dawn	128.9.0.92	
-	-	-	-	-	-	isi-rising	128.9.0.93	
-	-	-	-	-	-	isi-spanky	128.9.0.112	
-	-	-	-	-	-	isi-alfalfa	128.9.0.113	
-	-	-	-	-	-	isi-darla	128.9.0.114	
-	-	-	-	-	-	isi-buckwheat	128.9.0.115	
-	-	-	-	-	-	isi-stymie	128.9.0.116	
-	-	-	-	-	-	isi-farina	128.9.0.117	
-	-	-	-	-	-	isi-pete	128.9.0.118	
-	-	-	-	-	-	isi-froggie	128.9.0.119	
-	-	-	-	-	-	isi-wab2	128.9.0.121	
-	-	-	-	-	-	isi-randy	128.9.0.122	
-	-	-	-	-	-	isi-rag2	128.9.0.123	
+	+	-	-	+	-	csnet-purdue	128.10.0.2	
+	+	-	-	-	+	bbn-cvax	128.11.0.2	
+	+	-	-	-	+	bbnv1	128.11.64.1	
-	-	-	-	-	-	ucl-lsih	128.16.1.67	
-	-	-	-	-	-	ucl-lsil	128.16.1.106	
-	-	-	-	-	-	ucl-lsim	128.16.1.110	
-	-	-	-	-	-	ucl-lsii	128.16.1.112	
-	-	-	-	-	-	ucl-lsij	128.16.1.113	
-	-	-	-	-	-	ucl-lsik	128.16.1.115	
-	-	-	-	-	-	ucl-terminal-gateway	128.16.3.2	
-	-	-	-	-	-	ucl-sam	128.16.9.0	
-	-	-	-	-	-	ucl-probe	128.16.9.1	
-	+	-	-	+	+	ucl-tg	128.16.9.2	
+	-	-	-	-	-	ucl-cs	128.16.9.3	
-	-	-	-	-	-	ucl-niftp	128.16.9.4	
+	-	-	-	-	-	edn-host1	128.19.1.1	
+	-	-	-	-	-	brl-hep	128.20.1.2	
+	+	-	-	+	+	amsaa	128.20.3.1	
+	+	-	-	+	+	brl-voc	128.20.3.2	
+	+	-	-	+	+	hel-ace	128.20.3.4	
+	+	-	+	+	+	sri-spam	128.21.32.2	
-	+	-	-	+	-	wisc-rsch	192.5.2.1	
-	+	-	-	+	-	wisc-db	192.5.2.2	
-	+	-	-	+	-	wisc-crys	192.5.2.7	
+	+	-	-	-	+	cit-750	192.5.7.3	
+	+	-	-	+	-	uw-beaver	192.5.8.1	
+	+	-	-	+	-	uw-lumpy	192.5.8.2	b
+	+	-	-	+	-	uw-wally	192.5.8.3	

Claim SMTP	Arpa net	ISI-Net	VRFY Post	RCPT Post	Bad jqkx	Host name	Address	Notes
+	+	-	-	+	-	uw-june	192.5.8.4	
+	+	-	-	+	-	uw-eddie	192.5.8.6	
+	+	-	+	+	+	utah-gr	192.5.12.22	
+	+	-	+	+	+	utah-sp	192.5.12.23	
+	-	-	-	-	-	nyu-cmcl1	192.5.15.5	
+	-	-	-	-	-	nyu-acf2	192.5.15.9	
+	+	-	-	+	+	brl-bmd	192.5.21.1	
+	+	-	-	+	+	brl-vld	192.5.21.2	
-	-	-	-	-	-	brl-svg	192.5.21.3	
+	-	-	-	-	-	brl-tgr	192.5.21.4	
+	+	-	-	+	+	brl-vgr	192.5.21.6	
+	-	-	-	-	-	cornell-pvax	192.5.36.4	

Notes
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a) "VRFY postmaster" gave an unknown user reply; all other negative replies were because VRFY was not implemented.

b) No connection could be opened to this host during the test of mailing to nonexistent users